

**PROJECT MANAGEMENT SYSTEM WITH WBS AND
VERSION CONTROL**

Software Design Specification

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Signatures

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Preface

This document presents the Software Design Specification for the Project management system with WBS and Version control system. The major sections of the document address the system decomposition by module, concurrent process, and data entity. The system dependencies are also described.

Section 2, Decomposition Description, gives a view of the whole system design including concurrent processes and data entities that are common amongst all system modules. An important discussion of how the Project management system with WBS and Version control system modules with extended client software is included this section. This discussion includes a UML Class Diagram that depicts the entire system.

Section 4, Interface Description, goes into detail about the user interface for each module of the Project management system with WBS and Version control software. This is followed by an important discussion of the processes implemented in logic for each module of the system.

Section 5, Detailed Design, extends the design discussion found in Section 2 and describes the design for each system module in more detail. A UML Class diagram is included for each module design discussion. This is followed by a description of the data requirements for each module and the design of those data elements.

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1 Introduction

1.1 Purpose

The purpose of the Software Design Specification is to describe the specific design of the Project management system with WBS and Version control system. The design specification includes an overview of the design along with software module decomposition.

This document provides a detailed description of each software module's design. For each module, a user interface design and class diagram design is given. As well, a process description is described for each module. It is in the process description that the details of what logic will need to be implemented are given.

1.2 Scope

It is within the scope of the Software Design Specification to describe the specific system design of the Project management system with WBS and Version control project. This would include user interface design, object-oriented class design, process design, and data design. Any specific detail that is needed about the standards or technology used to design the software are within the scope of this document.

It is outside the scope of this document to describe Project management system with WBS and Version control systems and technology. It is also outside the scope of this document to describe in any detail at all how certain mentioned standards or technologies work and operate.

1.3 Definitions and Acronyms

Table of Definitions, Acronyms, and Abbreviations

Definition, Acronym, or Abbreviation	Description
SDS	Software Design Specification.

1.4 References

Table of References

References	Description
Software Development Plan	The Software Development Plan from the Project management system with WBS and Version control system was referenced.
Software Requirements Specification	The Software Requirements Specification from the Project management system with WBS and Version control system was referenced.

2 Decomposition Description

2.1 Module Decomposition

The Project management system with WBS and Version control system Software has been decomposed into the following modules.

- Login: Log user in if details provided exists in database
- Logout: Log user out of the system
- Create New project: Register new Project (user) in the database
- Create WBS: Create WBS by the users needs
- View WBS: View the WBS if created before
- Update Progress: Update the newly finished modules in the progress tracking system
- View Progress: Visual Representation of progress of project
- Add File: Add new file in the project
- See Current Version: See current versions of the files
- See Previous Version: See previous versions of the files
- Edit File: Edit existing file
- Delete File: Delete file from project
- Manage Database: Administrator can start and stop server and remove malicious users from database

2.2 Concurrent Process Decomposition

The Project management system with WBS and Version control system consists of two major components, the Project Client and the Server. This team shall design the Project Client. The design of the server software is to provide the functionality needed by client.

A complete view of the project suggests that there are two processes, the server process and the project client process. The project client process communicates with the server process to obtain various functionalities. These two processes run concurrently and only exchange information when the project client process requires a functionality.

2.3 Data Decomposition

The following are the two major data components, Project client and Server.

Server: This is a database that contains the following data items;

Project ID: A string-containing Project ID. Used only for identification of the files by the user. It is passed from project client that is front end on each request of data.

Data is store in form of nested JSON object list for each project ID created.

The Project Client: This is a front-end structure of the project that is attached with the login information and fetches the data from server according to Project ID of the project. It has functionalities Create New project, Create WBS, View WBS, Update Progress, View Progress ,Add File ,See Current Version ,See Previous Version ,Edit File ,Delete File:

3 Dependency Description

3.1 Inter-module Dependencies

3.1.1 Independent Modules

The following modules are independent and do not rely on any other modules to initiate them or to provide data.

- Create New Project.
- Manage Database

3.1.2 Dependent Modules

The following modules are dependent on one another for their functioning.

Definition depends on symbolized as >

- Login > create new project modules as if project is not registered then one cannot login.
- Logout > Login > create new Project as one cannot logout without login
- Create WBS > Login > create new project on can create WBS only after Login
- View WBS > Create WBS > Login > create new project
- Update Progress > Create WBS > Login > Create new project
- View Progress > Create WBS > Login > Create new project
- Add File > Login > create new project
- See Current Version > Add File > Login > create new project
- See Previous Version > Edit File > Login > create new project
- Edit File > Add File > Login > create new project
- Delete File > Add File > Login > create new project

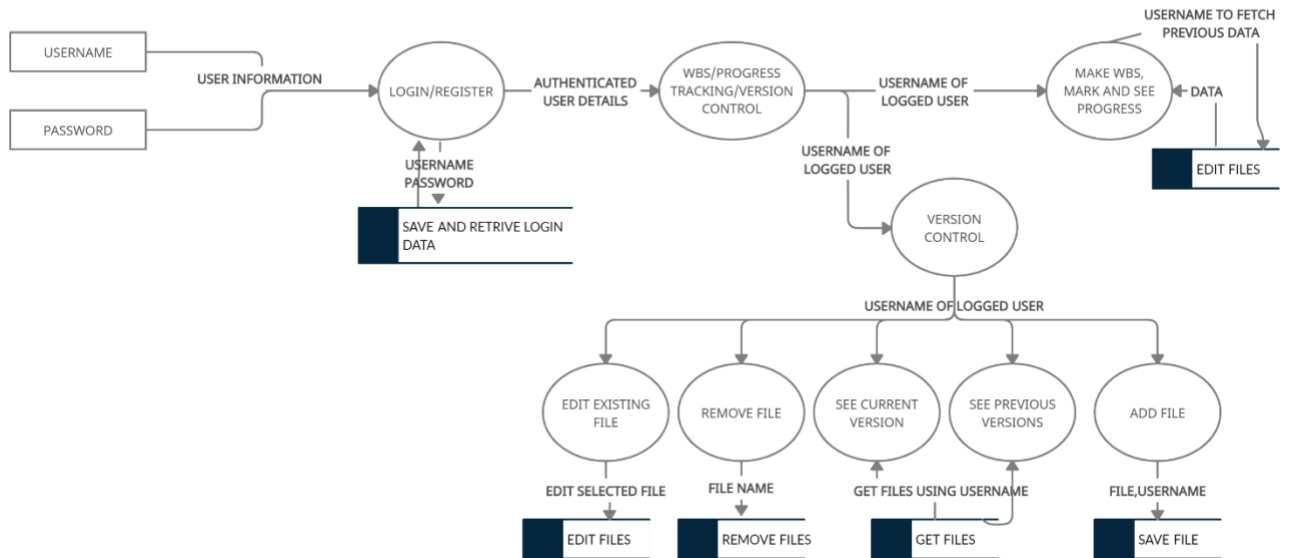
3.2 Inter-process Dependencies

There is no inter-process between modules as such all module processes depends on proper working of server side of the application

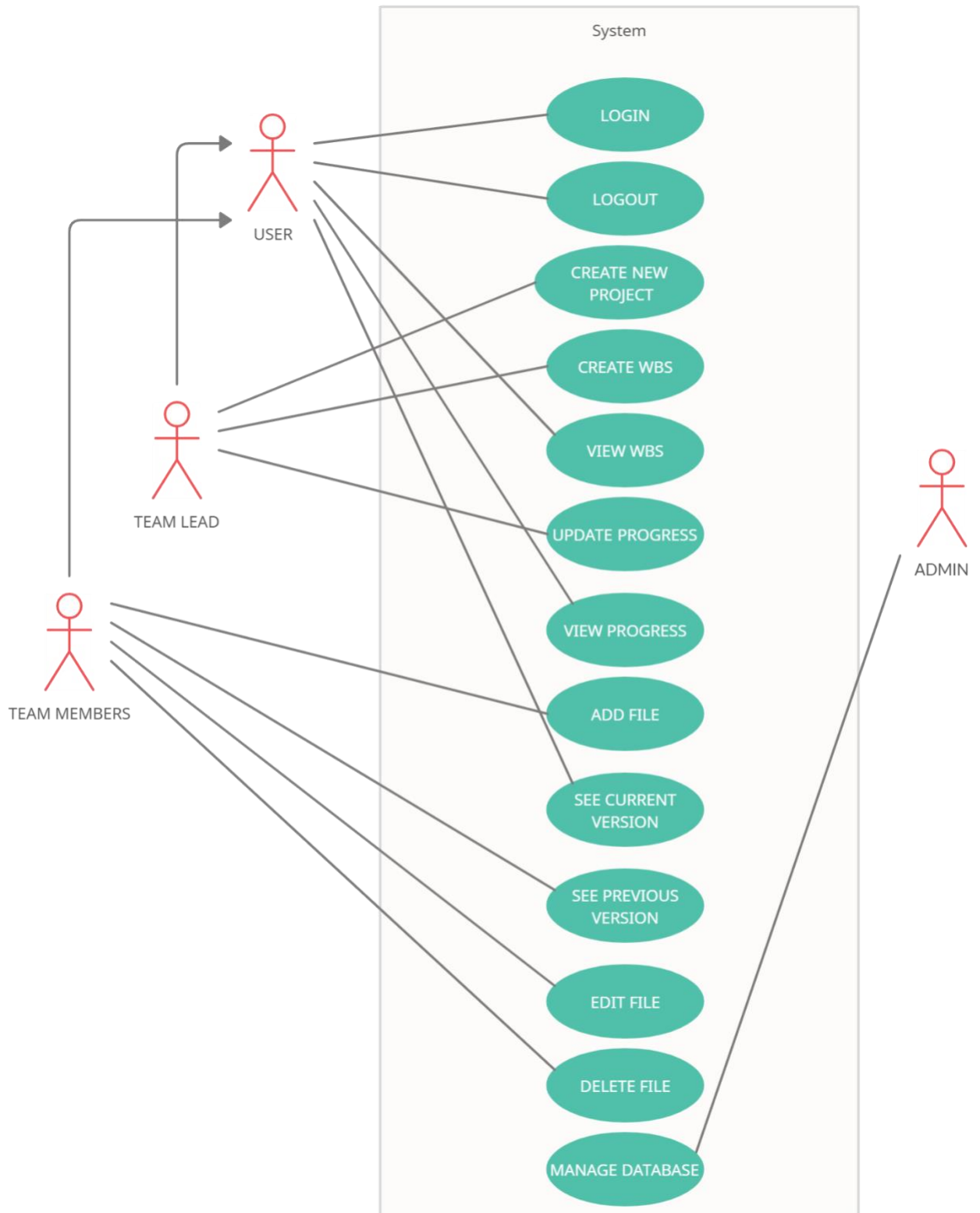
3.3 Data Dependencies

The following Data Flow Diagram shows the data dependencies between the various entities and modules.

Figure 1, Data Flow Diagram



(Revised) Use Case Diagram for Project:-

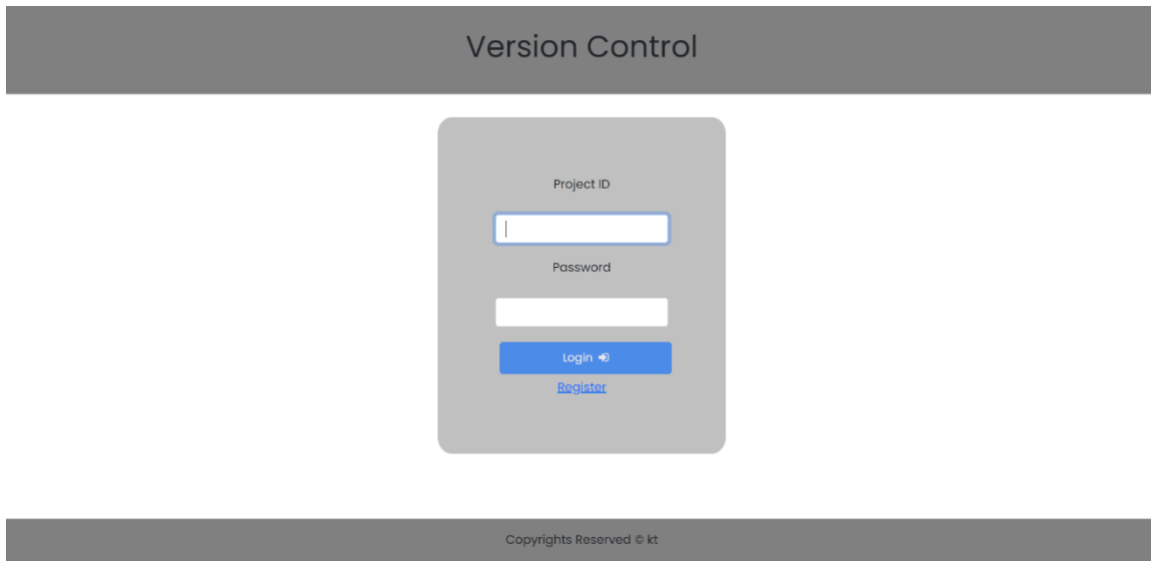


Interface Description

3.4 Module Interface

3.4.1 Login

3.4.1.1 User Interface Design



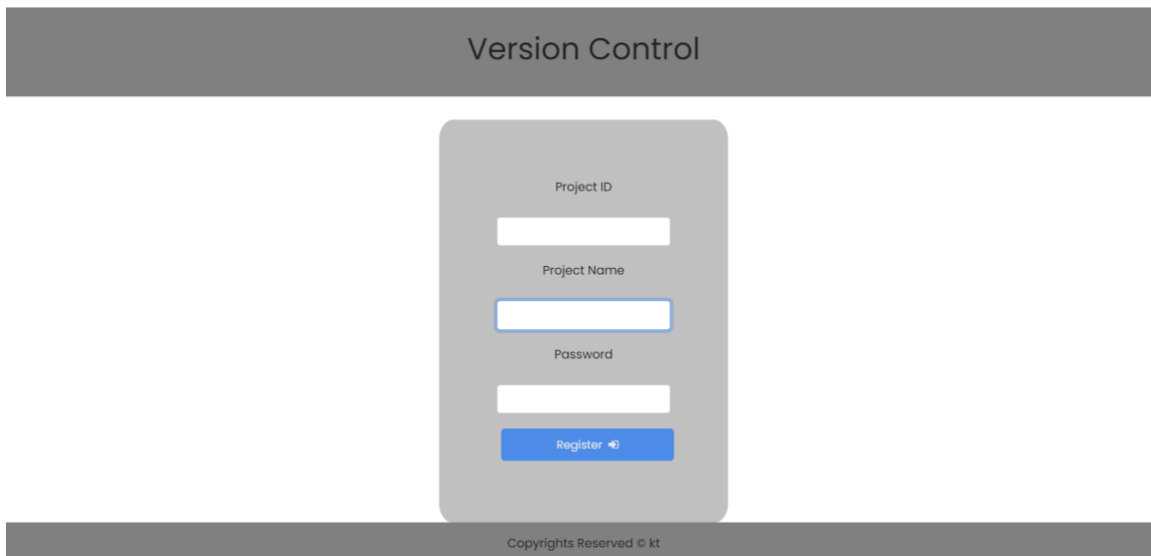
The image shows a user interface design for a login page. At the top, there is a dark gray header bar with the text "Version Control" in white. Below the header, the main content area is white. In the center, there is a gray rounded rectangle containing the login form. The form has two input fields: "Project ID" and "Password". Below the "Password" field, there is a blue button labeled "login" with a right-pointing arrow. Below the button, there is a blue link labeled "Register". At the bottom of the page, there is a dark gray footer bar with the text "Copyrights Reserved © kt" in white.

3.4.1.2 Description

Takes the project ID and Password from user and authenticate the user. If valid then redirect to home page else shows message of invalid login information.

3.4.2 Create New Project (Register)

3.4.2.1 User Interface Design



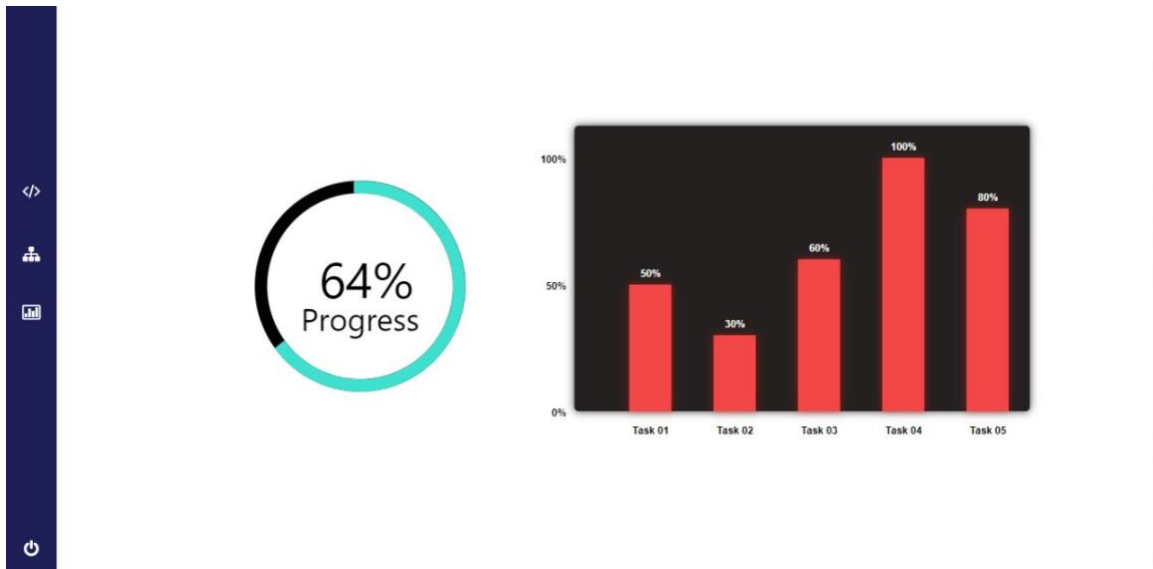
The image shows a user interface design for a register page. At the top, there is a dark gray header bar with the text "Version Control" in white. Below the header, the main content area is white. In the center, there is a gray rounded rectangle containing the register form. The form has three input fields: "Project ID", "Project Name", and "Password". Below the "Password" field, there is a blue button labeled "Register" with a right-pointing arrow. At the bottom of the page, there is a dark gray footer bar with the text "Copyrights Reserved © kt" in white.

3.4.2.2 Description

The following figures show the Create new project module (Register). Take Project Name , Project ID and Password from user and creates a new project saving user data in database and redirects to login screen after registration.

3.4.3 Progress Tracking

3.4.3.1 User Interface Design

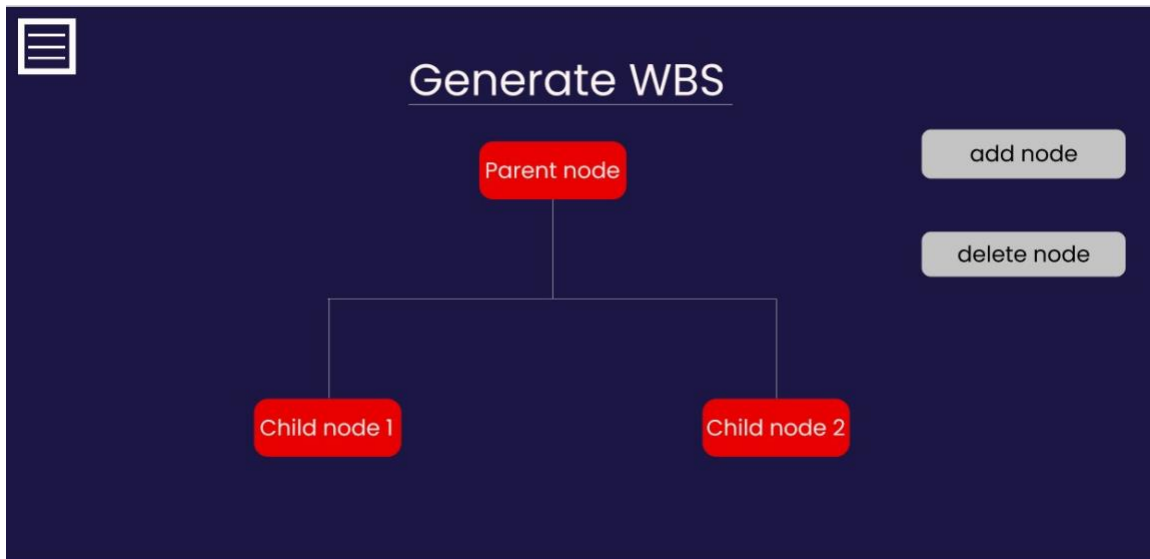


3.4.3.2 Description

The User Interfaces allow the team leader of the project to see the progress and update by clicking on the tasks.

3.4.4 WBS Creation and View

3.4.4.1 User Interface Design

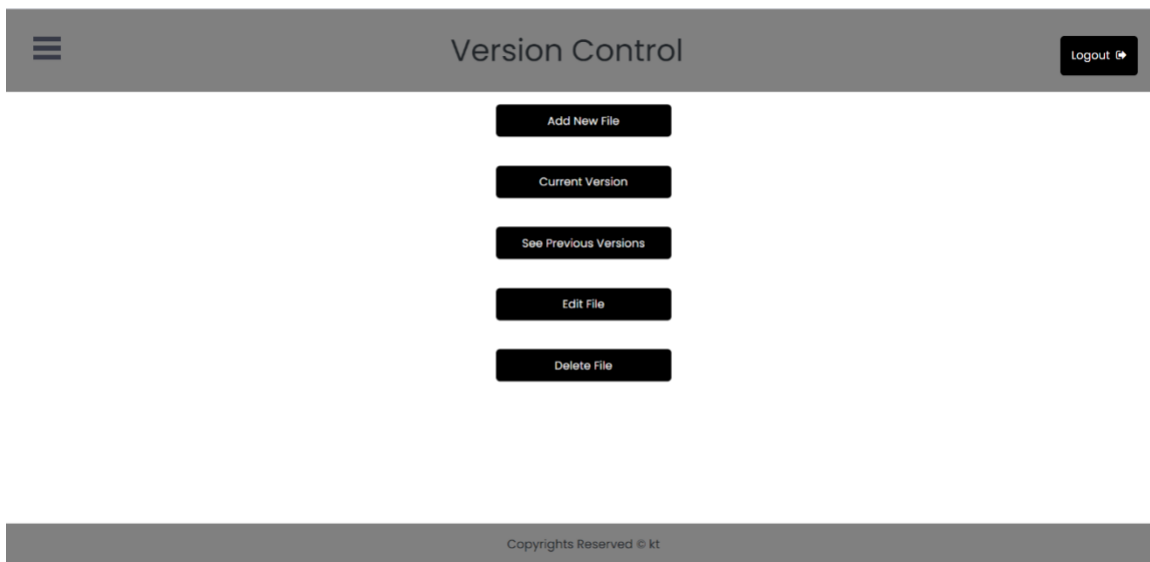


3.4.4.2 Description

In the module user can create WBS as shown in the Demo GUI.

3.4.5 Home Screen of Version Control

3.4.5.1 User Interface Design

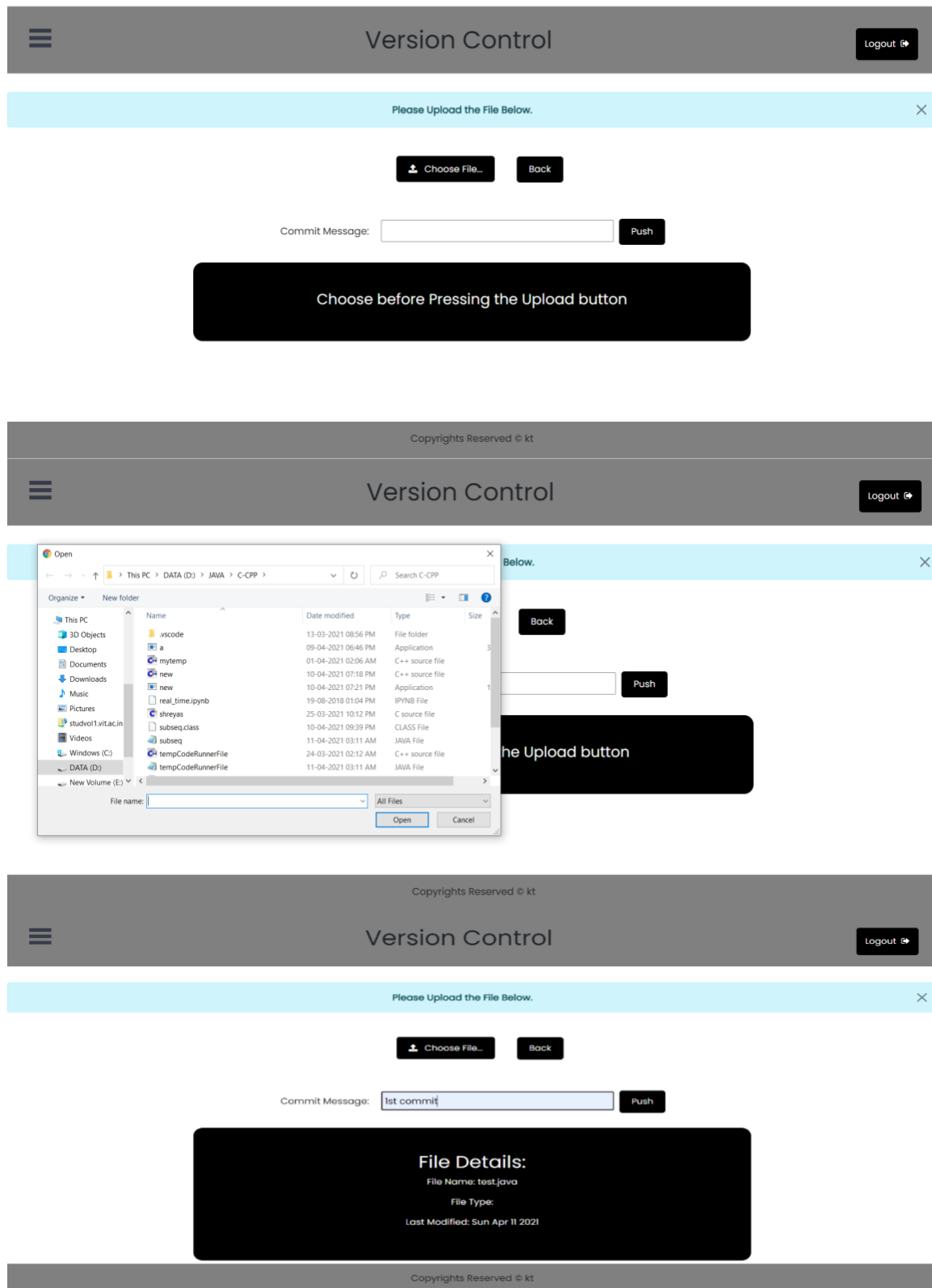


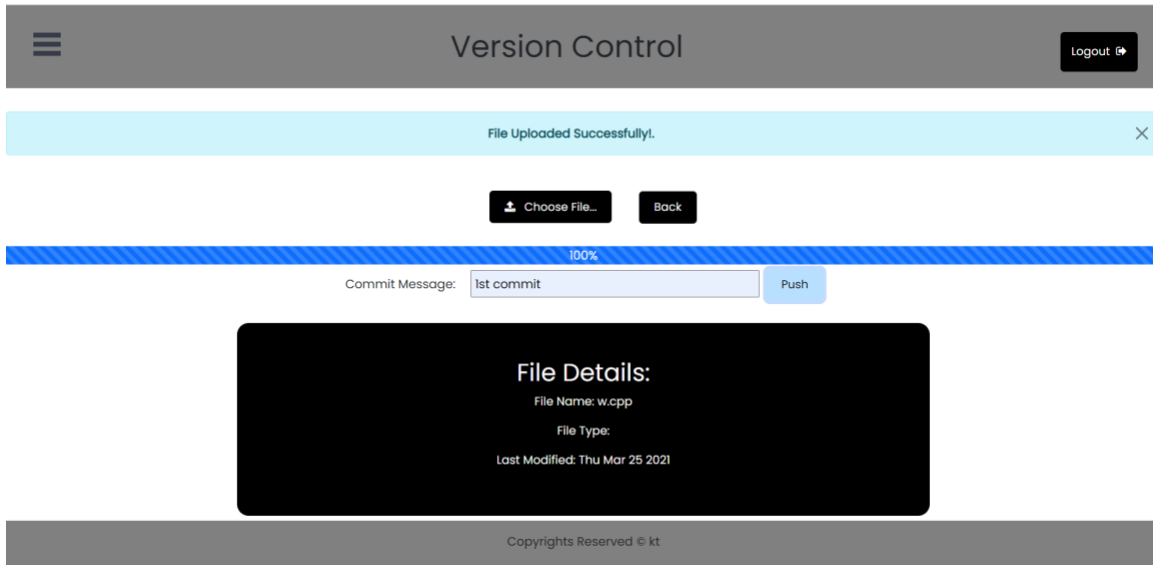
3.4.5.2 Description

The UI for the version control showing various modules (functionalities) present in version control module

3.4.6 Add File

3.4.6.1 User Interface Design





This screenshot shows the 'Version Control' interface. At the top, there is a header bar with a menu icon on the left, the title 'Version Control' in the center, and a 'Logout' button on the right. Below the header, a light blue notification bar displays the message 'File Uploaded Successfully.' with a close icon. The main area contains a 'Choose File...' button with a download icon and a 'Back' button. A blue progress bar indicates '100%' completion. Below the progress bar, a 'Commit Message:' label is followed by a text input field containing '1st commit' and a 'Push' button. A dark grey box in the center displays 'File Details:' with the following information: 'File Name: w.cpp', 'File Type:', and 'Last Modified: Thu Mar 25 2021'. The footer bar contains the text 'Copyrights Reserved © kt'.

3.4.6.2 Description

The UI for the version control showing the various GUI associated with add file module step by step. Here user can add commit message with the file uploaded to identify the versions later in versions.

3.4.7 See Current Version

3.4.7.1 User Interface Design



This screenshot shows the 'Version Control' interface for viewing the current version. The header bar is identical to the previous screenshot. Below the header, there is a 'Back' button. The main area features a large grey rounded rectangle containing a dark grey box with the filename 'w.cpp'. The footer bar contains the text 'Copyrights Reserved © kt'.



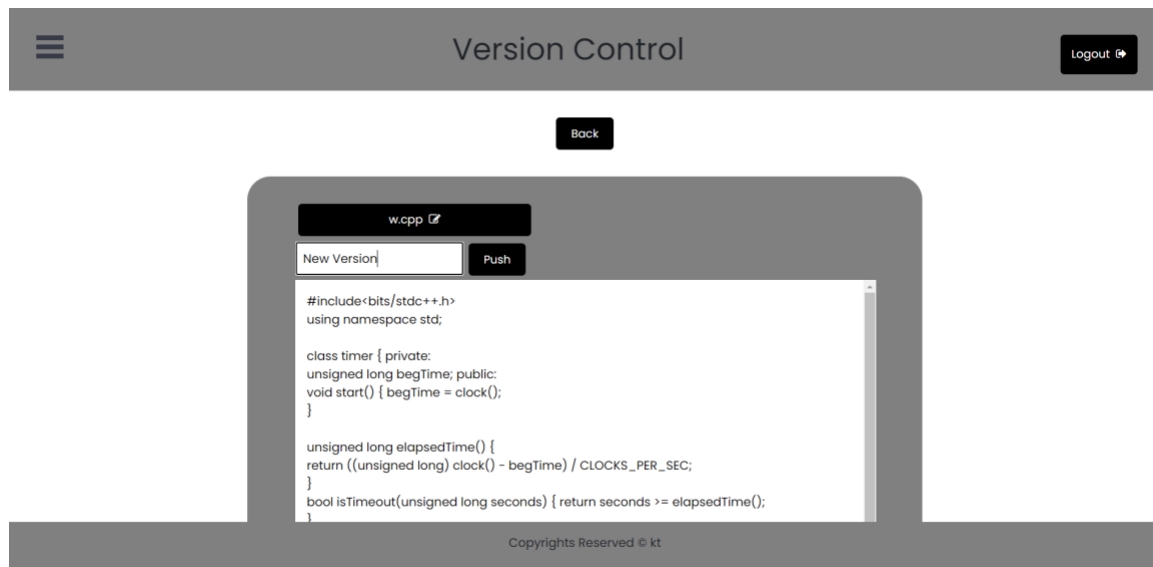
3.4.7.2 Description

In the following diagram shows the UI to see current versions of files and their data.

3.4.8 Edit File

3.4.8.1 User Interface Design





3.4.8.2 Description

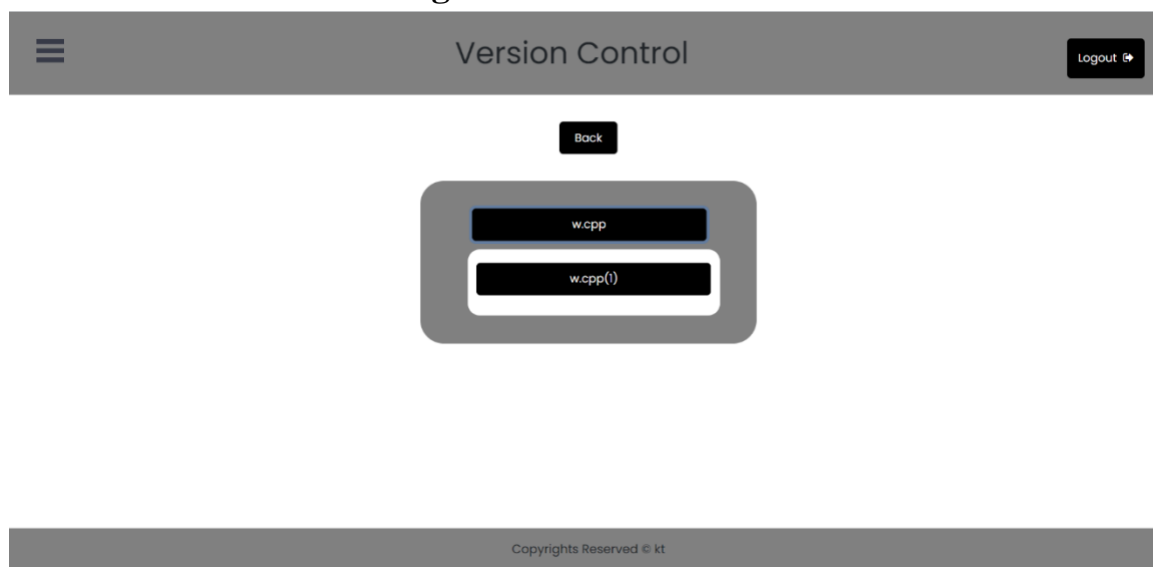
In the following diagram shows the UI to edit data of the files present in the project . by clicking on the file and editing the current version of the project and save it with new commit message

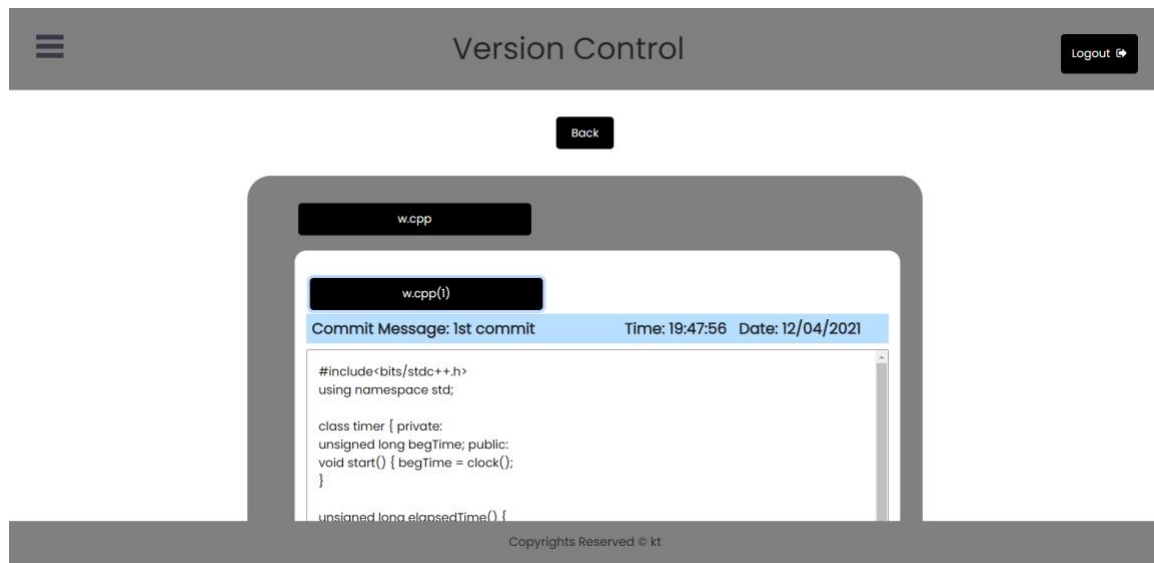
3.4.8.3 Description

In the module user can create WBS as shown in the Demo GUI.

3.4.9 See Previous Versions

3.4.9.1 User Interface Design





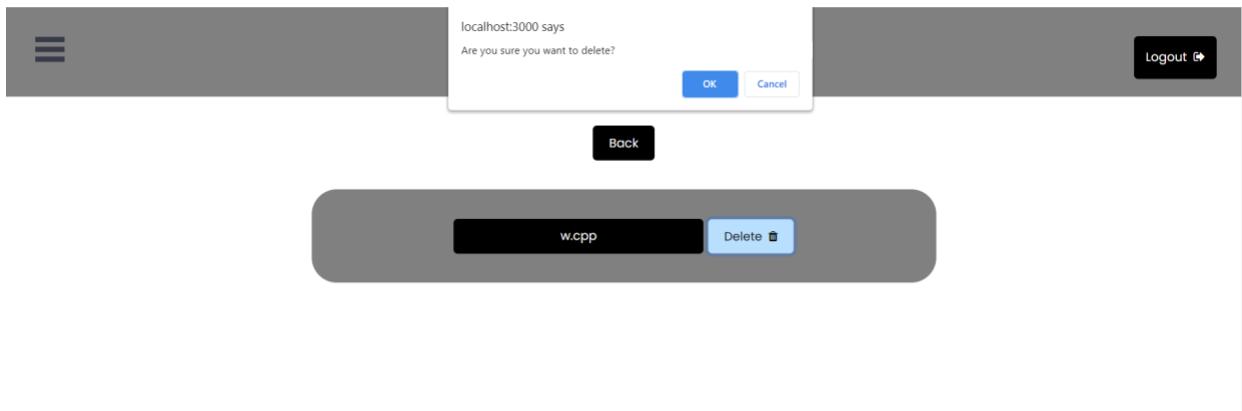
3.4.9.2 Description

In the following diagram shows the UI to see previous versions of files and their data with timestamp and commit message.

3.4.10 Delete Files

3.4.10.1 User Interface Design



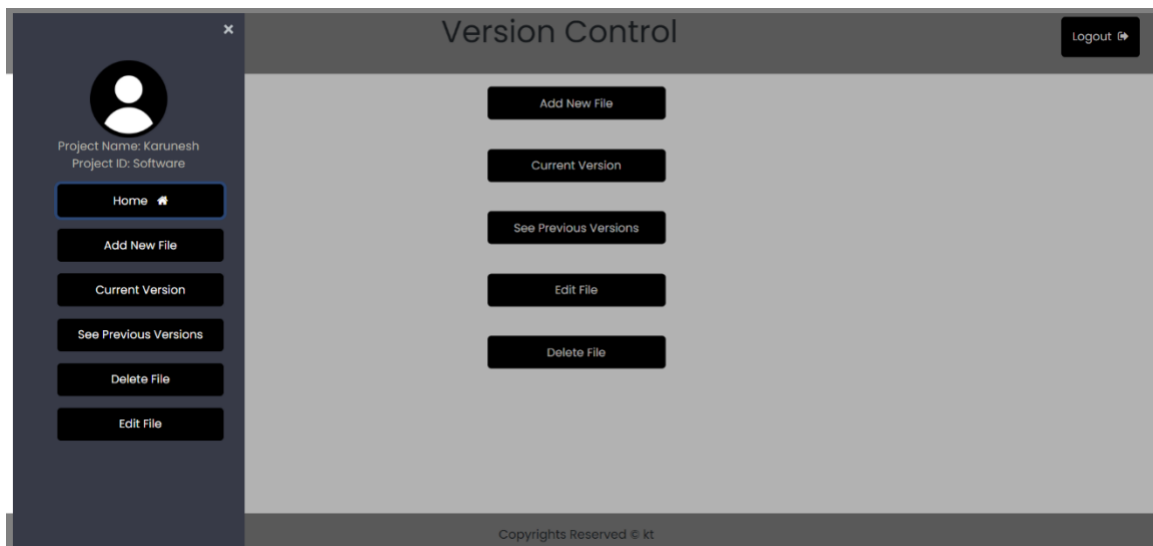


3.4.10.2 Description

In the following diagram UI shows how to delete files from the project by clicking on the delete button present in front of the file name and confirming ok button in the confirmation message.

3.4.11 Navigation Bar

3.4.11.1 User Interface Design



3.4.11.2 Description

The UI for the version control showing the navigation bar to navigate among the modules of version control part of the project.

3.5 Process Interface

3.5.1 Create New project Process Description

The following module the Create new project module (Register). Take Project Name, Project ID and Password from user and creates a new project saving user data in database and redirects to login screen after registration.

3.5.2 Login Process Description

This module takes the project ID and Password from user and authenticate the user. If details provided exists in database then redirect to home page else shows message of invalid login information.

3.5.3 WBS module Process Description

In the module user can create WBS using add node and delete node button present in the GUI and save it in the database.

3.5.4 Add file Process Description

This module of the version control add file in the project. Here user can add commit message with the file uploaded to identify the versions later in versions.

3.5.5 See Current version Process Description

In this module user can see current versions of files and their data of the project by clicking on the name of the file to be viewed.

3.5.6 See Previous Version Process Description

In the following module user can click buttons on the file needed to see previous versions of files and their data with timestamp and commit message.

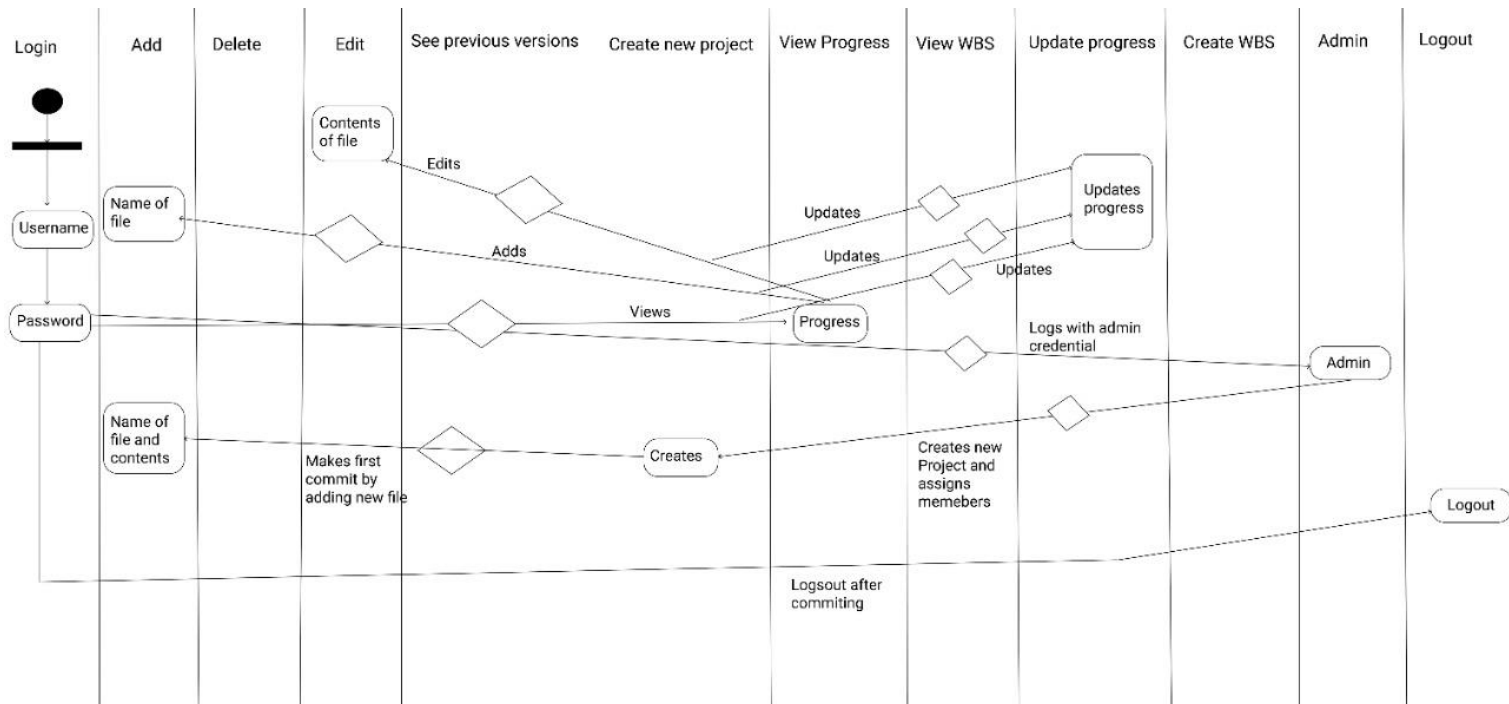
3.5.7 Edit File Process Description

In the following module user can edit data of the files present in the project . by clicking on the file and editing the current version of the project and save it with new commit message

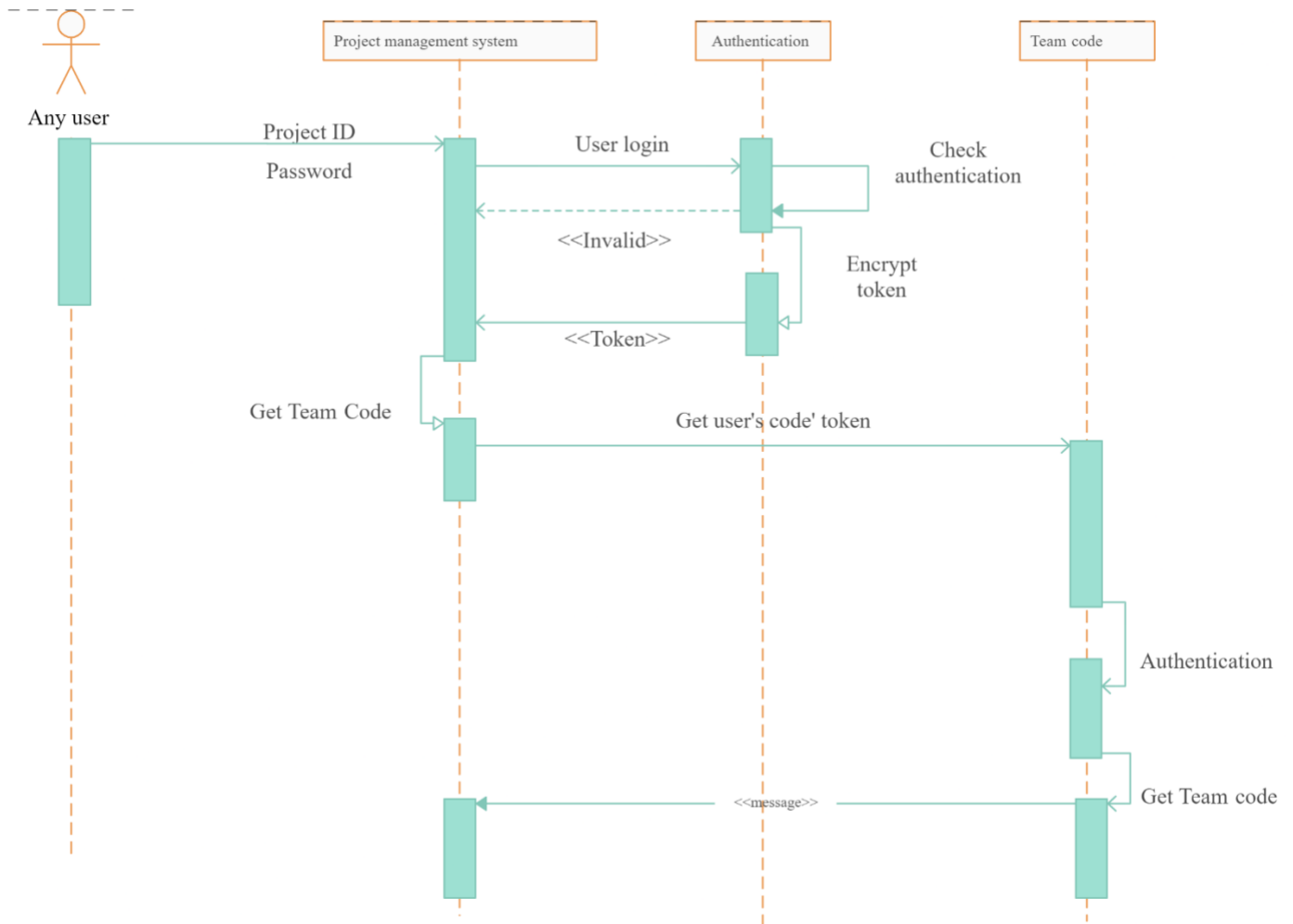
3.5.8 Delete file Process Description

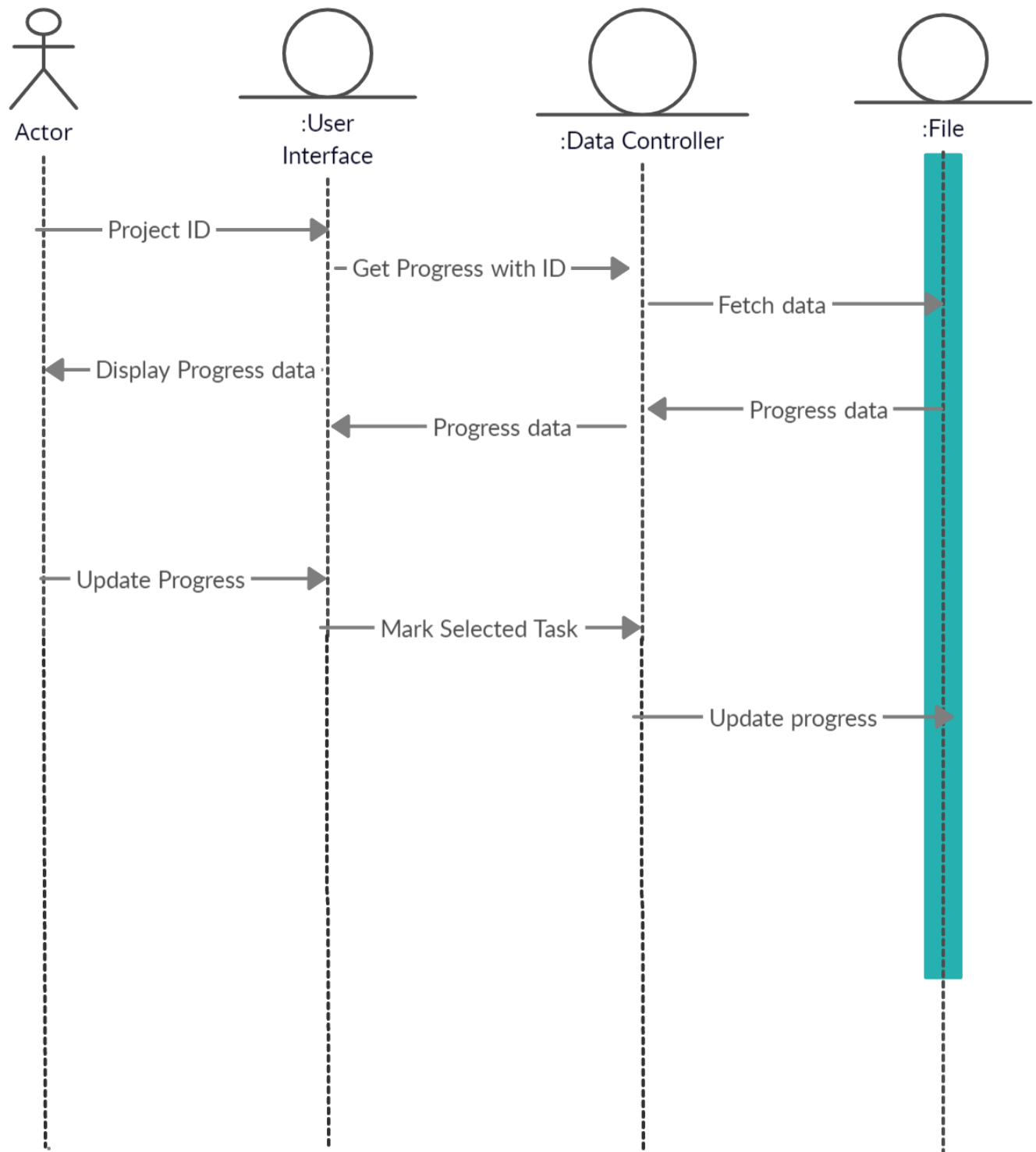
In the following module user can delete files from the project by clicking on the delete button present in front of the file name and confirming ok button in the confirmation message.

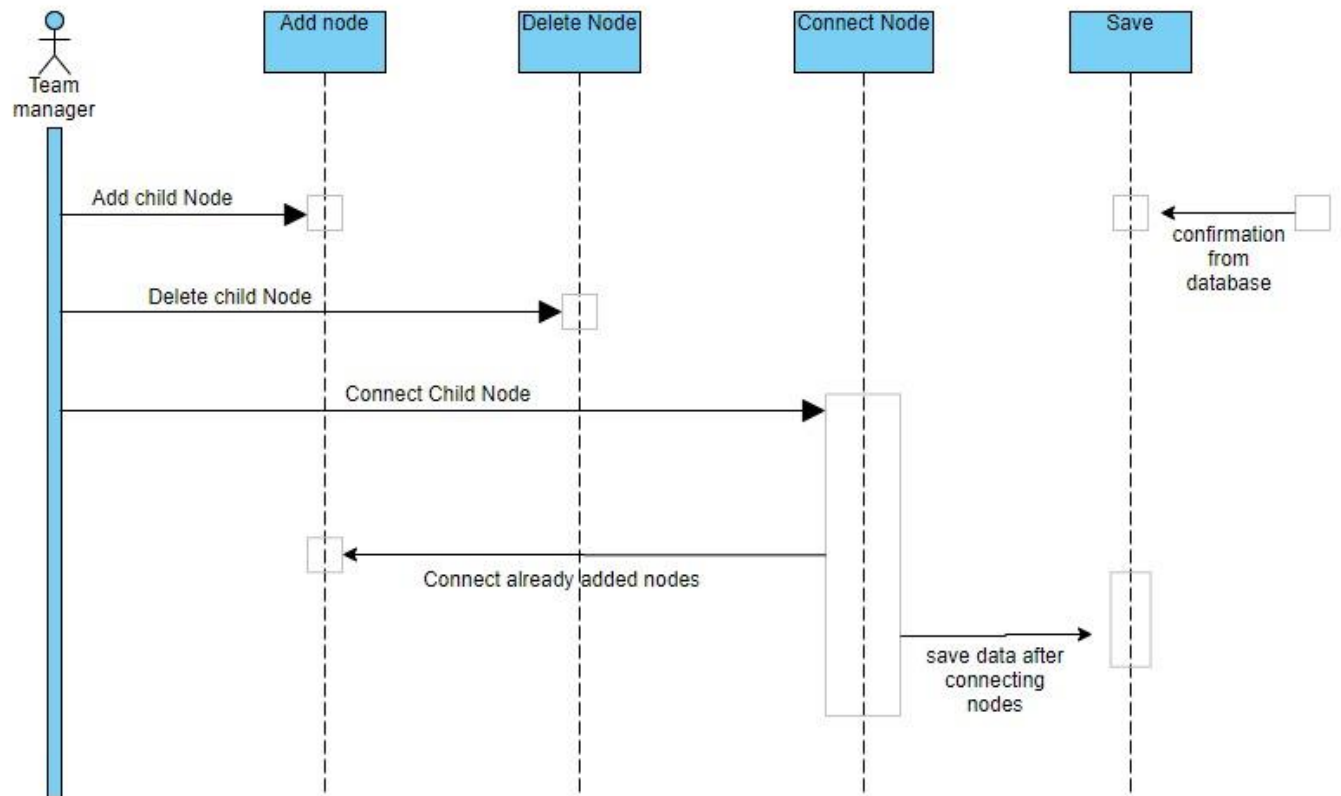
Swinglane Activity Diagram of Project :-



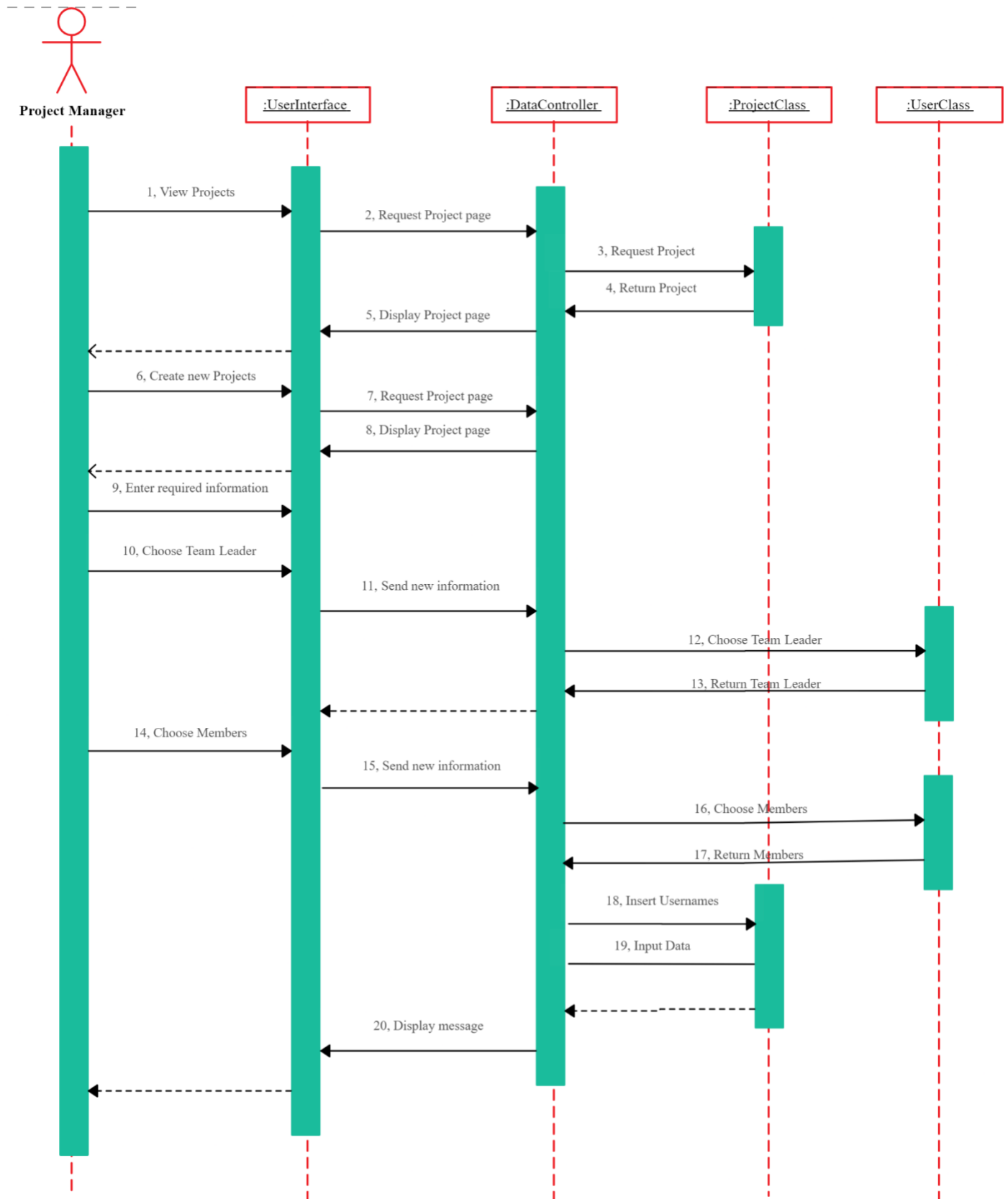
SEQUENCE DIAGRAM OF EACH MODULE:

Login and Authentication

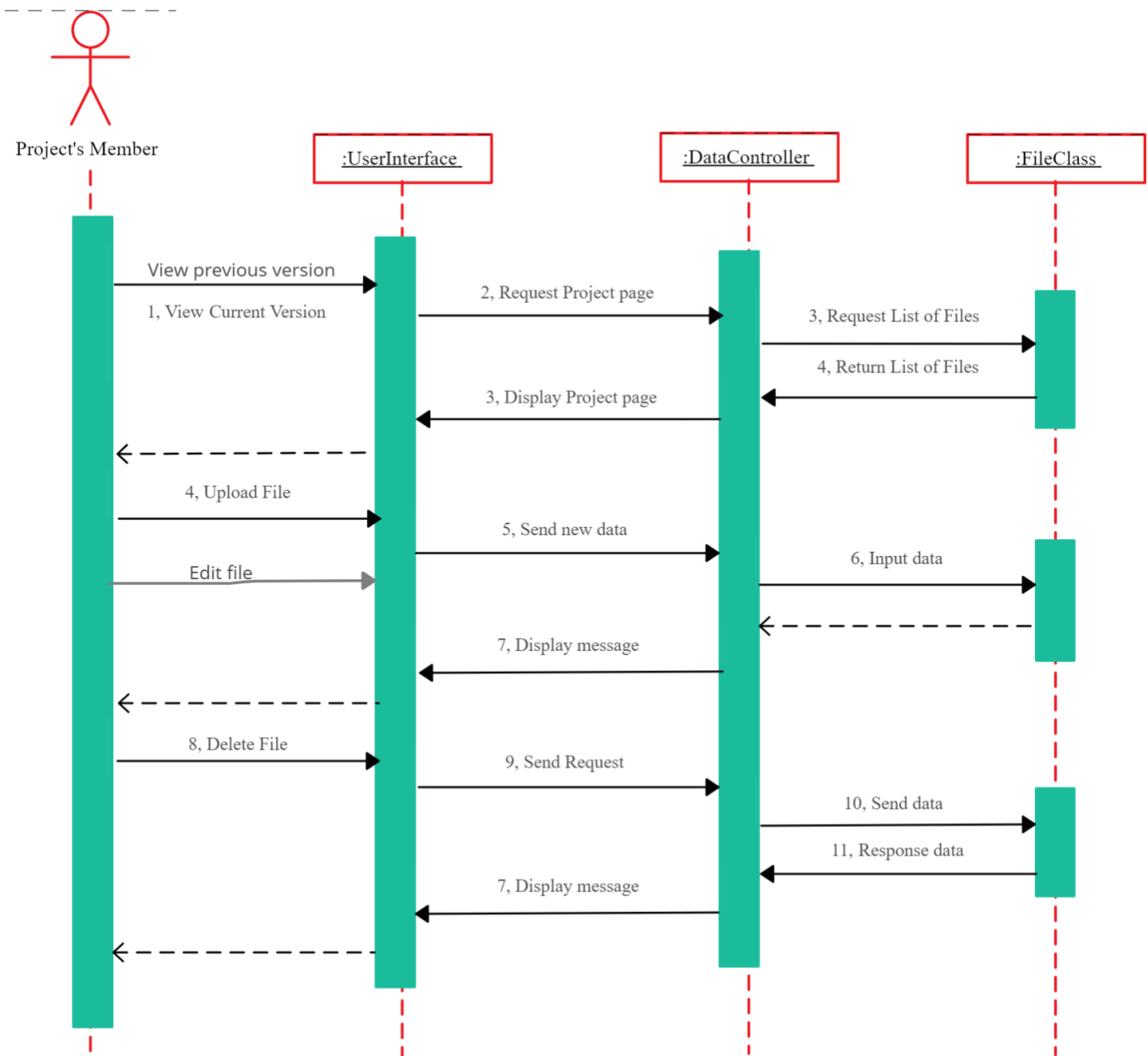
Progress status generation



Generation of WBS

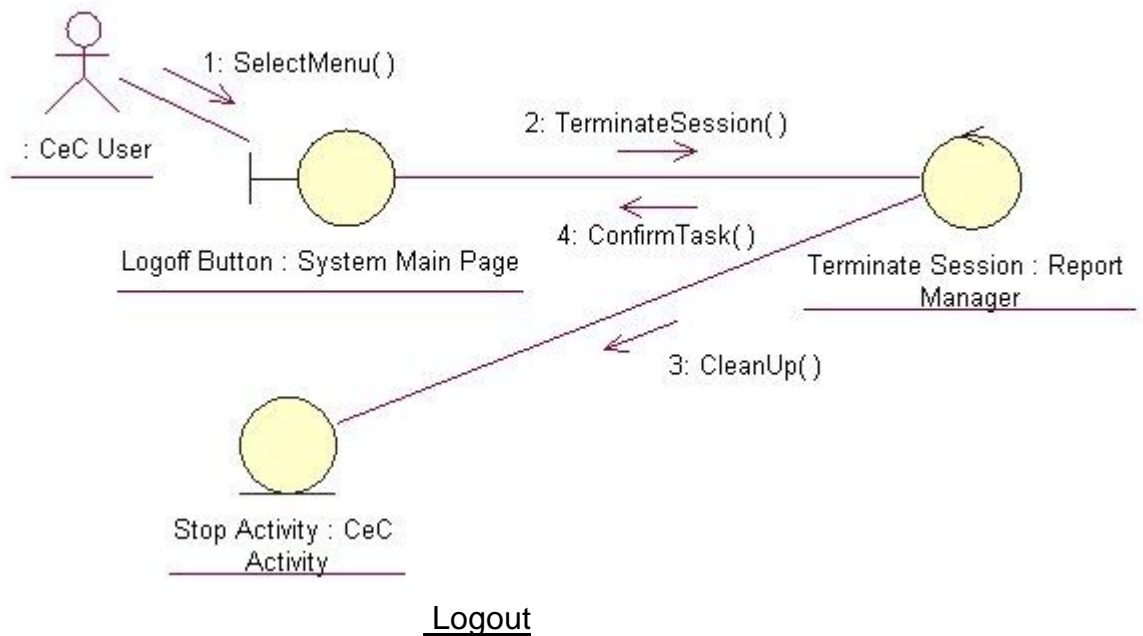
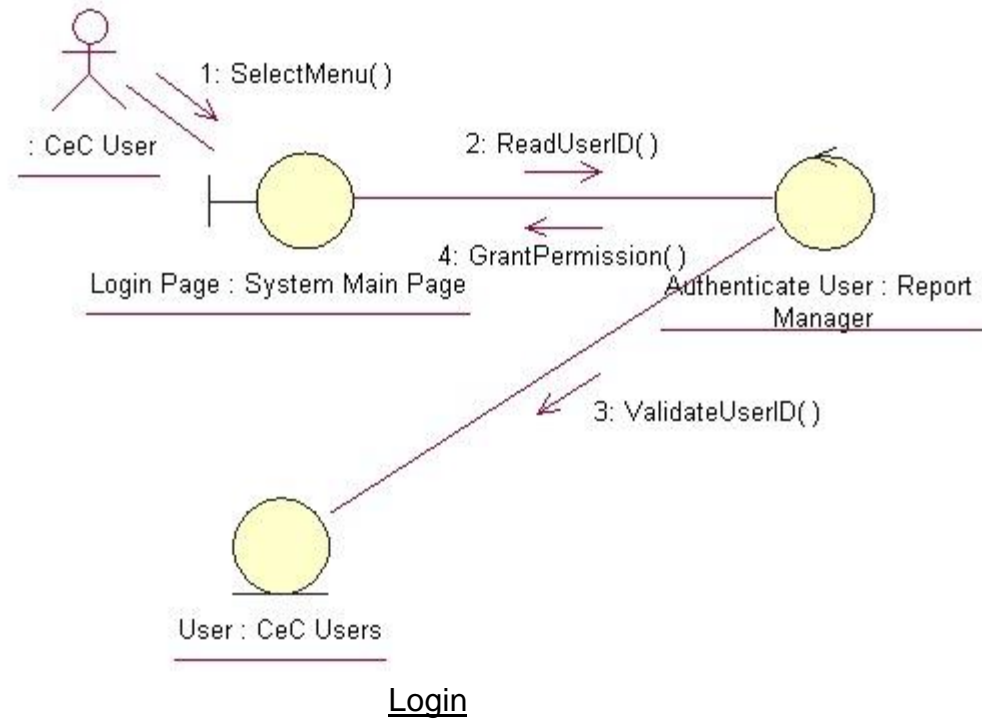


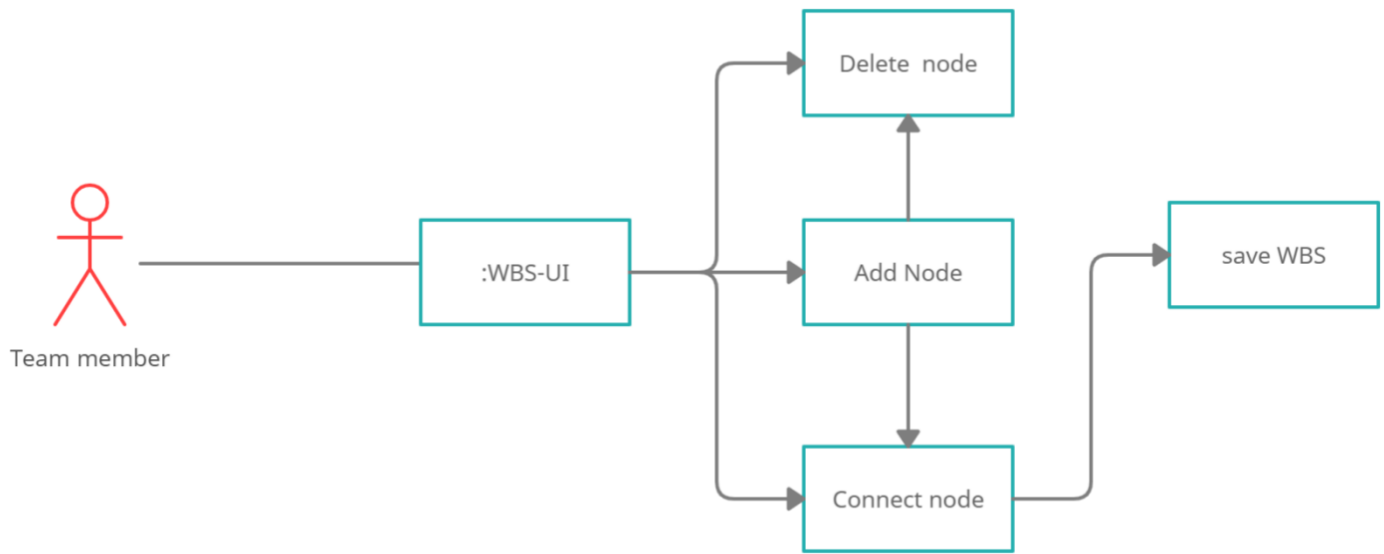
Create new project



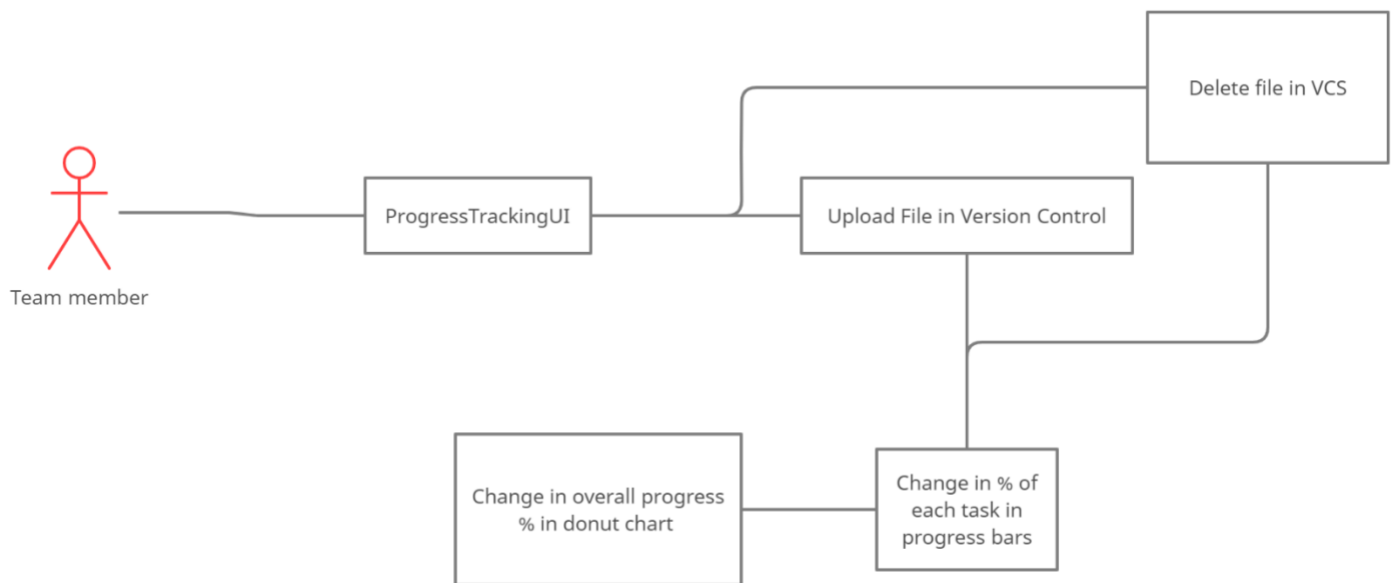
View, Add., Delete File in Version Control

COLLABORATION DIAGRAM OF EACH MUDOLE:

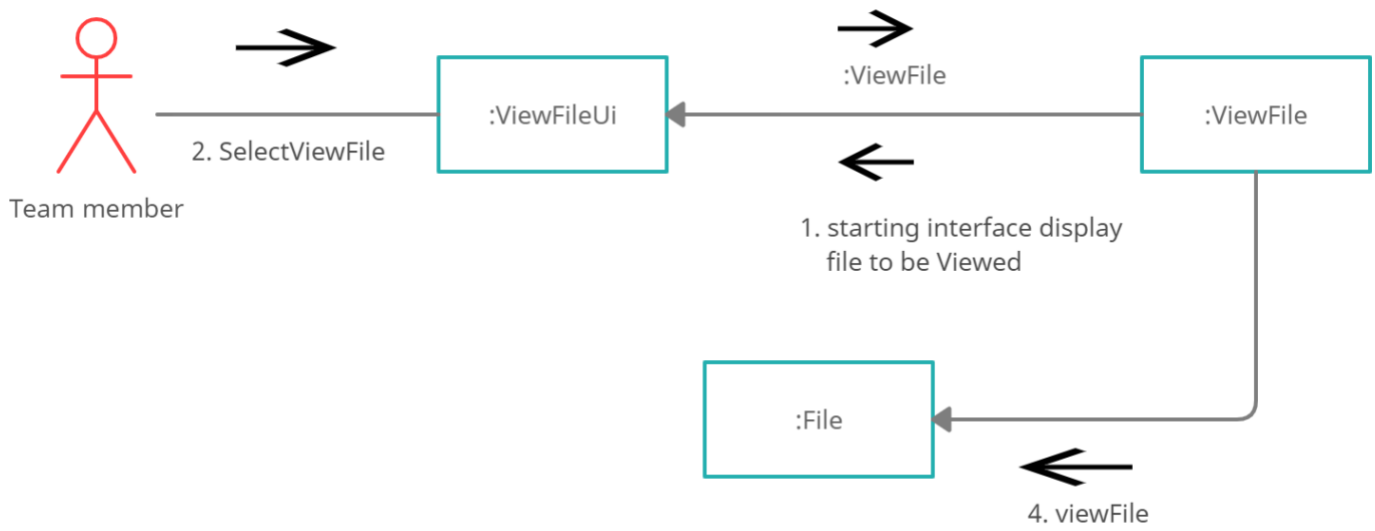




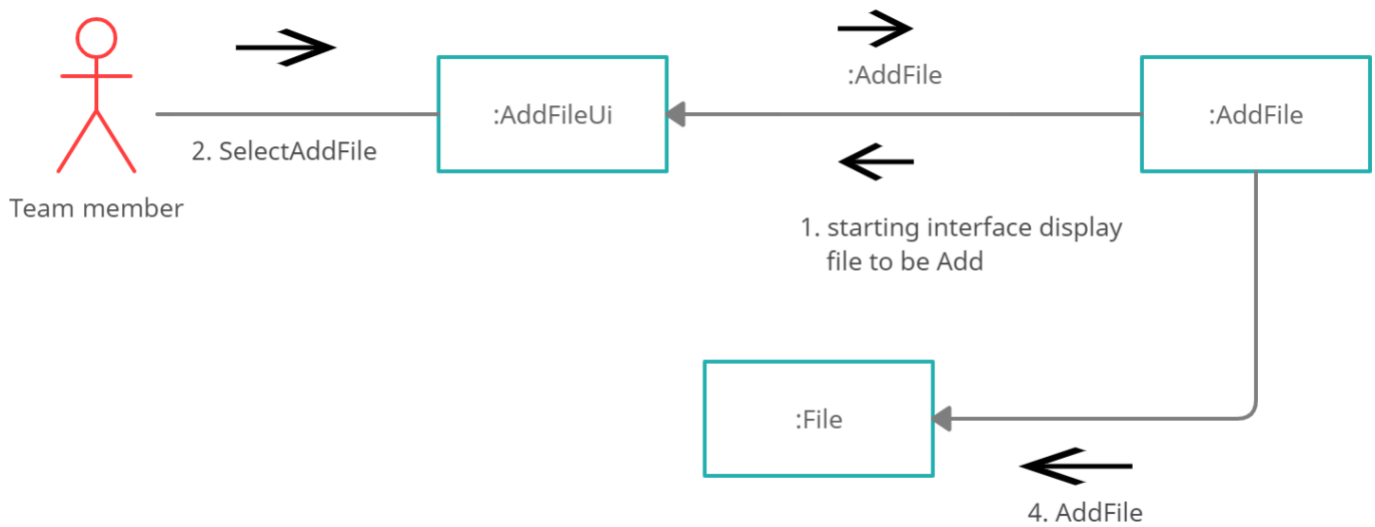
WBS Generation



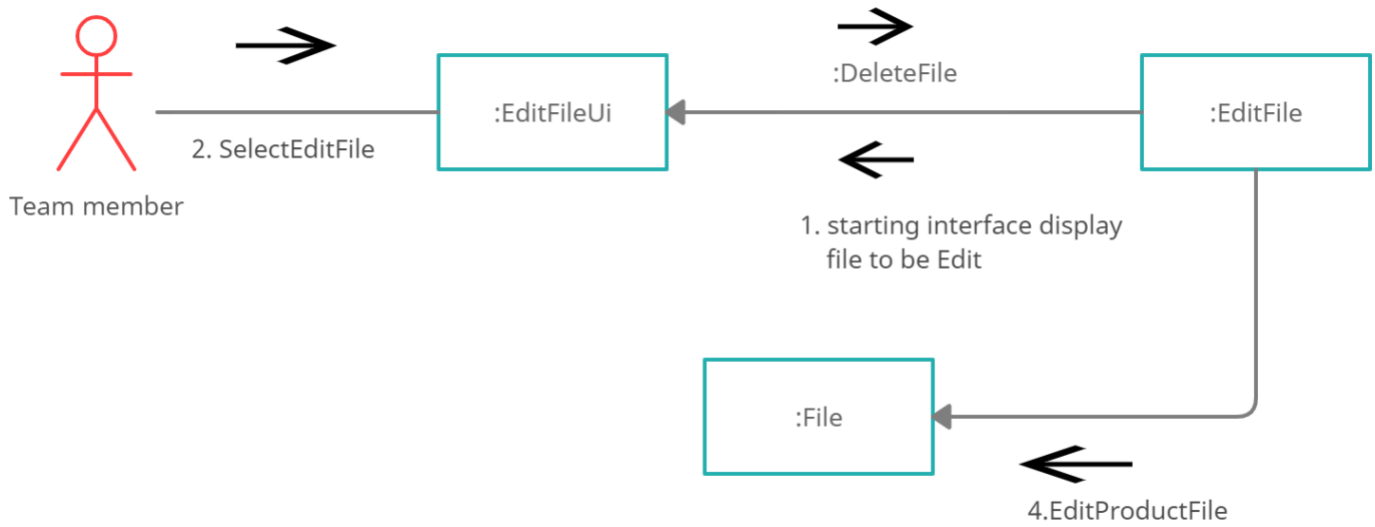
Progress Tracking



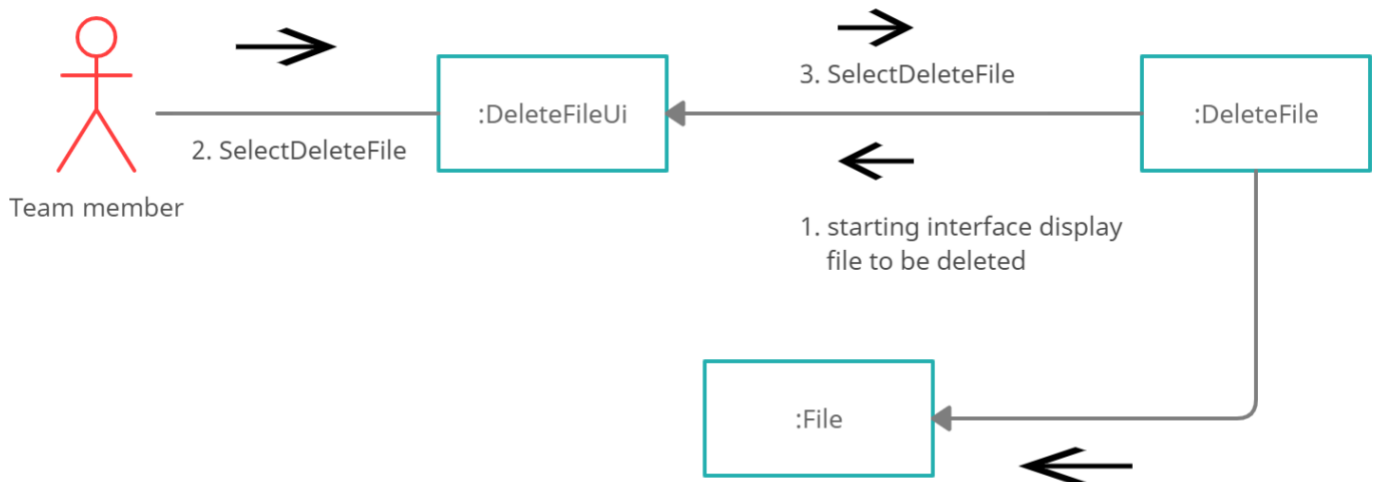
View File



Add File



Edit File



Delete File

Appendix A – Project Management System with WBS and Version Control Class Diagram

